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This Report for the  
Master of Education Degree

by

Rita J. Howells

has been approved

June, 1982

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Chairman, Supervisory Committee

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Reader, Supervisory Committee

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Reader, Supervisory Committee

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Head, Major Department

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SELECTING MICROCOMPUTER MATHEMATICS SOFTWARE

FOR THE ATARI 400, 16-K

by

Rita J. Howells

A summary report of the practicum in instructional or curriculum improvement submitted to the faculty in partial fulfillment of the requirement for the degree of

Master of Education

Major: Media

Department of Education

University of Utah

June 1982

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SELECTING MICROCOMPUTER MATHEMATICS SOFTWARE  
FOR THE ATARI 400, 16-K

INTRODUCTION

There are numerous educational microcomputer software programs on the market today. According to a report published in Curriculum Products Review, January 1982, there are one-hundred and one companies that distribute microcomputer software for education. Also, many individuals and computer "user" groups are developing and selling programs. Yet, in spite of this wide selection of available programs, the choices are limited for several reasons: (1) Not all microcomputer software will function in all microcomputers. (2) The available software is of questionable quality due to production problems. The quality of the software is difficult to evaluate because suppliers rarely provide demonstration samples, and good information about evaluation is hard to find. In most cases teachers and media specialists have only the biased opinions found in microcomputer software catalogs to help them make purchasing decisions.

PROBLEM STATEMENT

As was discussed in the introduction, there are many software programs from which to choose. However, the problem becomes one of determining in a logical fashion which programs should be purchased. This researcher has developed a keen interest in finding out what software is available for purchase and in making a judgment as to its quality.



There are two Atari 400, 16-K microcomputers at Granite Park Junior High School. These microcomputers are being used in the mathematics department for teaching basic programming and are used in a limited fashion for computing math problems. As yet no software has been purchased for these microcomputers. Additional use could be made of these computers if some effective computer assisted lessons in mathematics were purchased.

### DELIMITATIONS

The sample for this study was delimited to four instructors in the mathematics department at the Granite Park Junior High School.

The software considered for selection and evaluation was delimited to that which was compatible with the Atari 400, 16-K microcomputer with a BASIC cartridge and cassette player. The software was delimited to the mathematics curriculum area.

### DEFINITIONS

BASIC Cartridge contains the language components which make the micro-computer respond.

Computer Assisted Lessons are computer lessons designed to provide instruction in a curriculum area.

Computer User Group is a group of persons who have a common interest in microcomputers, in computer instruction, and in producing and exchanging software.

Drill and Practice Software refers to programs that assume previous instruction in the concept, skill or process to be addressed. They present a controlled sequence of exercises designed to drill the recall of certain facts.



Informational Software refers to programs designed to generate information (lists of prime numbers, powers or roots of a given number, etc.).

Instructional Gaming are programs calling on the user to apply one or more specific skill or concept in a game environment.

Microcomputer is a small-size system that includes all four elements of a large computer (Input, memory, central processing unit and output).

Simulation Software are programs that attempt to represent key aspects of some environment within which the user will experience the necessity to make decisions and will be informed of the results of those decisions without experiencing the real consequences of possible misjudgments.

Software refers to a computer program in a form that can be executed using the microcomputer equipment. A set of instructions to the computer.

#### PURPOSE

The purpose of this practicum was to assess the curriculum needs of the mathematics department of Granite Park Junior High School and to make judgment as to the effectiveness of available software. The purpose was also to make recommendation for purchasing microcomputer software for instructional use in mathematics.



## SELECTING SOFTWARE FOR MICROCOMPUTERS

### A Review of the Literature

#### INTRODUCTION

Over the last decade a high level of funding has been made available to purchase microcomputers for instructional use. Today microcomputers can be found in increasing numbers in most of the nation's public schools. About 2.8 million students in six percent of the country's public schools already do some of their work on microcomputers (Lopez, 1981). In spite of these facts, a majority of schools have not taken advantage of the many possible applications of microcomputers. In a 1979 survey of schools in the northwestern states done by North West Regional Educational Laboratory (NWREL), the item identified as the prime obstacle to wider use of microcomputers is the lack of adequate software (Holznagel, 1980). Blaschke (1979) also stated that "The major bottleneck limiting widespread and effective use of microcomputers in elementary and secondary schools is the availability of quality software..." (p. 26). Even now a common refrain among most microcomputer-using educators around the country continues to be, "There's a lot of junk out there". However, some good educational software is available and more should be available in the near future. Teachers and media specialists who must select software to purchase are faced with a difficult task. From hundreds of educational software programs on the market, they must be able to choose effective software to meet curriculum needs.

The first consideration to be made in the selection process is that of needs assessment. Ideally, educators should assess their instructional needs,



locate the most suitable software, and then purchase computers to fit the software (Blaschke, 1979; Holznagel, 1980; Miller, 1980). What is happening is a totally different thing. Local education agencies rush in and buy a variety of microcomputers. (They must spread their business around.) Then they sometimes find that the only software available is of poor quality or doesn't meet curriculum needs. In some cases the software is not compatible with the microcomputers in their schools. Many administrators fall victim to good salesmanship. They get school board approval to purchase computers; then they have no idea how the computers will be used once they arrive in the school. The computers gather dust in a closet, or they are not used to their full potential.

A second consideration to be made in the selection process is that of judgment of the quality of the software. These are some questions to be asked when deciding which software to purchase: Is the program pedagogically sound? Is the software suitable for the intended user? Does the software take advantage of the capabilities of the computer in presenting lessons (Kleiman, Humphrey and Van Buskirk, 1980)? Finding the answers to these and other evaluation questions is a difficult task because there is no central source of evaluation information at this time and previewing software is almost impossible to do.

After a search of the literature written about microcomputer software, there seems to be a consensus as to the reasons for the lack of quality software, and for the criteria necessary in evaluating and selecting good software.

The review of literature was limited to information written since 1979 because most of the material written prior to that time refers to computers and not to their "offspring" the microcomputer. The words microcomputer and computer are used interchangeably in this review.



## A QUESTION OF QUALITY

Some of the software that is on the market today is of questionable quality for several reasons: (1) Computer technology is changing so rapidly that manufacturers are concentrating their efforts on the production of hardware. Almost everyday new computers appear on the market. Smaller units, costing less money are developed as the competition gets keener. Although some educational software support is provided by the computer manufacturers, companies seem to be interested in developing only enough of a product line to create a demand for its hardware (Lopez, 1981). Producing good computer-assisted instructional software is extremely time-consuming and expensive; it also requires a high level of training and experience.

(2) The development of software is at an awkward stage centered around a cottage industry that lacks uniform standards, direction, and quality (Gleason, 1981; Jostad and Kosel, 1980; Nicklin and Tashner, 1981). There are estimated to be twenty thousand different software programs for computers. Most of these programs are either games or programs that have no educational value. Of these 20,000 programs, an estimated five percent (roughly 1,000 or so programs) are for education. Only three to five percent of these 1,000 programs are worth taking the time to preview (Electronic Learning, 1981).

(3) Another reason for the poor quality of software is that in many cases a program is developed by an expert in computer programming who lacks instructional expertise, resulting in a program that may not follow good educational practices. The reverse situation is also true. A teacher or instructor who learns the fundamentals of programming writes an educationally sound program that either does not run well or that does not take advantage of the computer's potential. The result is a glut of "junk" programs that are advertised or sold as computer assisted instruction (Gleason, 1981; Nicklin



and Tashner, 1981). For example, it is possible to buy a language drill with inappropriate vocabulary, a misleading history simulation, a biased and sexist reading comprehension program, or even a math program designed for elementary school children that has instructions written on a high school reading level (Miller, 1980).

#### CRITERIA FOR QUALITY SOFTWARE

Kleiman, Humphrey and Van Buskirk (1981), Eldredge and Delp (1981), and Olds (1981) are in agreement as to the following criteria concerning software:

(1) Software should follow good educational practice. A quality program involves careful specifying of objectives and presents the material in small sequenced units. A good program is free of technical and pedagogical errors. An effective program provides for positive reinforcement, helps students to understand wrong answers, and allows for creativity. Good programs include some diagnostic and branching features.

(2) Software should be suitable for intended users. A good program should provide easy-to-follow instructions on an appropriate reading level. It should also provide adequate instruction for the teacher on how best to use the program. The pacing, in a good program, should be controlled by the user except in programs used to increase speed such as spelling and word recognition.

(3) Software should take advantage of the capabilities of the computer in presenting lessons. Many lessons creatively designed can take advantage of the graphics and sound capabilities of the computer. A good program can be easily adapted for different users. Effective programs can monitor children's responses and provide special messages and immediate feedback.

#### NEED FOR INDEPENDENT REVIEW AND EVALUATION

Educators are faced with two dilemmas when making software purchase



decisions: (1) Suppliers of software rarely provide demonstration samples for previewing which means making the purchase and taking a chance the software will be of use in the curriculum. (2) Evaluations of software are difficult to locate because there is no national central clearing house for software evaluation. In order to make good decisions about software purchasing, schools and other institutions need access to the judgment of trained professionals on the quality and utility of programs offered by commercial vendors, "user" groups, and individuals (Classroom Computer News, 1981; Gleason, 1981).

There is some encouraging news that will help alleviate this problem. Micro-SIFT (Microcomputer Software and Information for Teachers) is developing a model for evaluation. It is the only effort being made so far to establish a national clearing house for software review. The MicroSIFT project will place major emphasis on establishing effective procedures for the collection, evaluation, and dissemination of materials for levels K-12 (Holznagel, 1981). An encouraging note also, is that various "state-of-the-art" publications are including some software reviews or evaluations in their issues. A partial listing of these publications include: The Computing Teacher, Classroom Computer News, Creative Computing, School Microware Reviews, Electronic Learning, and Educational Technology.

Some "user" groups around the nation are also providing review and evaluation of software. The most prominent and most frequently mentioned in the literature and among educational groups is the MECC (Minnesota Educational Computer Consortium). The Michigan Association for Computer Users in Learning (MACUL) also publishes reviews and evaluations in its journal. Various educational computing centers around the country are also making some reviews and evaluations available at their locations. Two of these centers are the North Carolina Instructional Computing Project and the Alameda County Office of Education. The Microcomputer Resource Center at Columbia University's



Teacher College and the EPI Institute, the country's only educational consumer advocacy group, have joined forces to evaluate the larger curriculum packages such as the Milliken's Revised Math Sequences (Classroom Computer News, 1981).

#### SUMMARY OF THE REVIEW OF LITERATURE

The lack of quality software is one of the main obstacles to the wider use of microcomputers in the classrooms today. Many of the available programs are poorly designed, do not take advantage of the computer's potential, and are difficult for students and teachers to use. Those responsible for selecting software will be faced with many choices and will need to know what is considered quality in educational software programs. They will need standards for evaluating the unique instructional materials made possible by computers (Heck, Johnson and Kansky, 1981). At present there are few sources to go to for evaluation information. In the future there will be a national clearing house established to help educators obtain good information about microcomputer software.



## PROCEDURE

A needs assessment (see Appendix A) was developed and given to the mathematics teachers. Then a tabulation of the results was made. A search for the requested instructional software was begun. First, a form letter (see Appendix B) was sent to the out-of-area software distributors who carry mathematics programs that are compatible with the Atari computer. Along with the software catalogs received from these companies, other catalogs were searched to determine the availability of suitable software.

Phone calls were made to all the local distributors of Atari Microcomputers. A list of these distributors was obtained by calling long distance to the Atari Headquarters in California. Quality Technology Company of Salt Lake City had the most instructional software in stock. Mathematics software from Dorsett Educational System and several software programs from the Atari Program Exchange were in the store and were evaluated using the evaluation form developed by the Granite School District Media Center (see Appendix D).

A search for review and evaluation information for available instructional software was made in state-of-the-art journals and periodicals. The School Microware Reviews, Winter 1982 contains an index to publication reviews. This publication was searched to determine if periodicals contained pertinent reviews.

A form letter (see Appendix C) was sent to several "user" groups such as the Minnesota Educational Computer Consortium and the Michigan Association for Computer Users in Learning requesting any information regarding evaluation information for mathematics software for the Atari microcomputer.

A list of the most effective instructional mathematics software compatible with the Atari 400, 16-K microcomputer was compiled and recommended for purchase for the mathematics department at Granite Park Junior High School.



## FINDINGS

### NEEDS ASSESSMENT

There are four instructors teaching in the mathematics department at Granite Park Junior High School. They were asked to fill out a needs assessment form (see Appendix A) and the results were then tabulated. All four instructors indicated they would like to have drill and practice software in all math areas especially in the math fundamentals (addition, subtraction, multiplication, and division). All of the instructors indicated they would like tutorial software in all of the math areas also. One instructor requested drill and practice in estimating numbers on the advanced level. Two instructors wanted software for problem solving that could be used in connection with word problems, percent, volume, area and estimating numbers. Informational type software about ratio, proportion and the metric system was also requested. One teacher wanted simulation software for ratio, proportion and percent problems. Two instructors indicated they could use some instructional games for their mathematics curriculum.

The instructional range requested was from grades seven to nine and the ability level wanted was from remedial to programs on the advanced level. Two instructors indicated the software they wanted would be used with individual students. Software to be used with individuals and small groups was preferred by another instructor.

### IDENTIFYING AVAILABLE SOFTWARE

A list of 101 manufacturers of educational software for preschool, elementary and high school classess appeared in the January 1982 issue of Curriculum Products Review. Along with the names and addresses of these manufacturers,



information was given about the curriculum area programs each company offers, and the type of microcomputer for which each company's programs were designed. It was ascertained from the information in the Curriculum Products Review publication that twelve companies had software designed for use in the Atari computer in the mathematics area.

A form letter (see Appendix B) was sent to each of the twelve manufacturers requesting information about available software in the mathematics area on the secondary level. Questions were asked seeking information about system and memory requirements, program language, grade level or ability level, specific content area or objectives, and support materials availability. Also among the questions asked were: Has each program been tested or validated in a classroom setting? What is the procedure or cost for obtaining each program for a full preview?

#### INFORMATION OBTAINED FROM VENDORS OUTSIDE LOCAL AREA

The following companies responded to the form letter which was sent: Edu-Ware sent a letter explaining the reason <sup>they</sup> could not send preview materials and suggested contacting one of the many microcomputing centers that review software systems. Enclosed with the letter was a list of these centers and their addresses (see Appendix G). A catalog of software offerings was also sent. The mathematics software in their catalog was designed for the Apple-soft microcomputer or the Atari with 32-K or 48-K. Nothing was listed for the Atari 400, 16-K.

Conduit sent a catalog of software programs. None of their programs are designed for use in the Atari 400, 16-K. Krell also sent a catalog of software programs. The emphasis of most of their software is on college board pre-



paration (SAT) and competency examination preparation. Nothing was listed on the secondary level in mathematics for the Atari 400 computer.

From Program Design Inc., (PDI) came a letter explaining the company's preview policy and a catalog of available software. They did not allow preview materials to be sent. One program "Addition with carrying" for ages seven and older is available. Also available for the Atari 400 micro-computer is "Quantitative Comparisions" eight programs that prepare students for SAT-type math problems, and "Number Series" eight programs that provide practice in common problem types. "Number Series" is designed specifically to help students and adults prepare for the SAT and other tests. A decision was made that none of the PDI software would meet the requests of the needs assessment.

The Code Works did not offer any math software for the Atari Computer. Teck Associates software requires Applesoft microcomputers. They do offer a demo diskette containing brief examples of the programs listed in their catalog for a nominal fee of \$5.00. From MECC Publication #999 dated April 1982, one math program #1204 "Metric and Problem Solving" was available for the Atari 400. This program is appropriate for the elementary level. SRA had a computer drill and instruction math software program for grades one through six that requires an Atari 800 40-K RAM memory and disk drive. K-12 Micro Media had a basic algebra software program for the Atari 400 which must be used with an Atari educational cartridge (a special cartridge that speaks to the user).

The Dynacomp, Inc. had one software program in mathematics for use in the Atari 400 computer. The program title is the "Rubik's Cube Solver" which is an exercise in algorithmic logic. This could be of use in the



instruction of advanced math students or possibly be a useful program for the gifted-talented program.

Additional catalogs that just happen to come to the school were surveyed. It was determined that no mathematics computer assisted instructional software, compatible with the Atari microcomputer, was listed in any of the catalogs.

The following catalogs were surveyed:

Boeing Computer Services Company (1981)  
P.O. Box 24 346  
Seattle, Washington 94124

Creative Computing Education Catalog (Spring 1982)  
Dept. E 52  
One Park Ave. Room 458

Edu Tech (1982)  
634 Commonwealth Ave.  
Newton Center, MA 02159

Gamco Industries Inc. (1981-83)  
P.O. Box 310 P  
Big Spring, TX 79720 0120

Micro Center (1982)  
Dept. 145-42  
P.O. Box 6  
Pleasantville, NY 10570

Milliken Publishing Company (1982)  
1100 Research BLVD.  
St. Louis MO. 63131

Scott Foresman and Company (1982)  
Electronic Publishing A-069  
1900 East Lake Ave.  
Glenview, Illinois 60025

Opportunities for Learning, Inc., (1981)  
8950 Lurline Ave.  
Dept. GE390  
Chatsworth CA 91311

Pendulum Press, Inc. (1982)  
Saw Mill Road  
West Haven, CT 06518



Psychological Corporation (1982)  
757 3rd Ave.  
New York, NY 10017

#### SOFTWARE AVAILABLE FROM LOCAL VENDORS

A visit was made to Quality Technology in Salt Lake City. It was found that very little mathematics software for the Atari 400 was available. Two Atari produced mathematics software programs, "Mathematic TAC TOE" (see Appendix D) and "Lemonade" (see Appendix E) were evaluated. Also one of the Dorsette Educational Systems Math programs (see Appendix F), distributed by Quality Technology, was evaluated. The evaluation instrument used was a form created by the Granite School District Media Center.

"Mathematic TAC TOE" designed for ages 8-16 is a very interesting game-type practice program for using basic mathematic skills such as addition, subtraction, multiplication, and division. It is played by two people using a standard three by three tic tac toe grid. Players can select one of fifteen levels of difficulty in any of the four skill areas and select one of fifteen time-limit levels. The player chooses a square to fill and the computer poses a math problem which must be answered correctly in the designated time period. The game ends when one player fills a row vertically, horizontally, or diagonally, or when the players fill all nine squares. This software program received the best evaluation and the highest recommendation for purchase.

"Lemonade" for ages 8-12 is another game-type program for teaching basic economic concepts, such as the effect of setting prices, the impact of advertising, and the influence of general events on business ventures. Each day, the lemonade stand owner decides how many glasses of lemonade to prepare, how many advertising signs to make at a given cost, and how much to charge per glass. The outcome



of each day's decisions determines the assets available in subsequent days for production and advertising. This program might be useful in business math, but does not make the best use of graphics and therefore might not hold the attention of young players. This program was not recommended for purchase at this time.

Dorsett Educational Systems, Inc. has available six sets of mathematics programs for use in the Atari 400. These programs range from level one to level twelve. An "educator cartridge", which speaks to the user, has to be inserted in the microcomputer in order to use the Dorsett programs. At present the cost of this special cartridge is approximately seventy dollars. Only one set, level 4-8 dealing with fractions, decimals and percents, consisting of eight tapes was available for preview and evaluation (see Appendix F). The programs are tutorial in nature. The voice speaking to the user is the strong point of the software. The weak areas of the program were that the lessons tended to be boring. No graphics, color or sound other than the voice were used. Students would be tempted to guess at the correct answers because of the two and or three multiple choice answer format. The Dorsett programs might be more useful as practice in estimating numbers. These programs were not recommended for purchase at this time.

#### REVIEWS FROM "USER" GROUPS

A form letter (see Appendix C) was sent to various computer "user" groups seeking review information. The following groups responded:

The Michigan Association for Computer Users in Learning (MACUL) in its journal as of July-August 1981 contained over 100 reviews, but lists none for the Atari computer.



The Florida Center for Instructional Computing sent many copies of software reviews plus a list of good sources to go to for reviews (see Appendix G). No reviews of software programs for the the Atari were included in their materials.

Minnesota Educational Computing Consortium (MECC) has only begun recently to handle software for the Atari Computer, therefore, did not have evaluation information available for their limited Atari programs (total of four programs). They do have much information about Apple II Software.

#### REVIEWS AND EVALUATION INFORMATION FROM STATE-OF-THE-ART PERIODICALS

A copy of the winter 1982 School Mircoware Reviews was obtained and the index surveyed to find any evaluation material regarding Atari software in the area of mathematics. This publication indexes 582 references to reviews which appeared over the past two years in some of the most widely read journals. The following publications included reviews of mathematics software designed for use in the Atari 400, 16-K microcomputer;

Purser's Magazine, Summer 1981 (Two reviews)

Creative Computing, October 1981

A search for the reviews in the Purser's Magazine was not made because it was determined from reading the catalog information that the programs did not fill the requirements of the needs assessment. The review in Creative Computer was not read because it was determined from the title "Classroom Management System for Math B" that this type of program was not mentioned in the needs assessment.



## CONCLUSIONS AND RECOMMENDATIONS

The Microcomputer Software Assessment Instrument is an effective way to determine the needs of instructors in mathematics. In the future it will be used to assess microcomputer software needs in all curriculum areas at Granite Park Junior High School.

Mathematics microcomputer software for the Atari microcomputer is very limited unless the computer is equipped with disk drive, 32-K or more memory or has a special educational cartridge. There are many more programs available for the Apple and the TRS-80 than for any other type computers.

Previewing and evaluating the microcomputer software itself is the most effective way to make purchasing decisions, because evaluation information is so difficult to obtain. The information is scattered in so many different places, it becomes very time consuming to search it out. The School Microware Reviews Index to Reviews in Other Publications is the best source of review information at this time. Even with this publication in hand, a search for the particular periodical still has to be made.

One software program was recommended for purchase. It is the "Mathematics Tac Toe" (\$12.95) from Atari Program Exchange.

It is further recommended that the memory boards in the Atari 400 microcomputers be upgraded to 32-K or 48-K with disk drive added to take advantage of the many software programs that are currently available which require more memory capability. The present cost to upgrade an Atari 400 to 32-K is \$150.00 and to upgrade to 48-K is \$250.00. Broader use could be made of the microcomputer with increased memory not only in the mathematics department, but in all other curriculum areas. For instance the microcomputer has great potential in art, music, social studies, etc.

Administrators should be encouraged to insist the microcomputers become part of the media center's inventory and checked out to all departments as needed.



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## APPENDIX A

GRANITE PARK JUNIOR HIGH SCHOOL  
MICROCOMPUTER SOFTWARE ASSESSMENT

DEPARTMENT \_\_\_\_\_

INSTRUCTOR \_\_\_\_\_

INSTRUCTIONAL RANGE\_\_\_\_\_  
GRADE LEVEL (s)\_\_\_\_\_  
ABILITY LEVEL (s)INSTRUCTIONAL GROUPING FOR PROGRAM\_\_\_\_\_  
INDIVIDUAL\_\_\_\_\_  
SMALL GROUP (size \_\_\_\_\_)\_\_\_\_\_  
Large GROUP (size \_\_\_\_\_)TYPE OF PROGRAM\_\_\_\_\_  
Drill or practice \_\_\_\_\_ Curriculum Area\_\_\_\_\_  
Curriculum Area\_\_\_\_\_  
Curriculum Area\_\_\_\_\_  
Curriculum Area\_\_\_\_\_  
Tutorial \_\_\_\_\_ Area\_\_\_\_\_  
Problem Solving \_\_\_\_\_ Area\_\_\_\_\_  
Informational \_\_\_\_\_ Area\_\_\_\_\_  
Simulation \_\_\_\_\_ Area\_\_\_\_\_  
Instructional Gaming \_\_\_\_\_ Area\_\_\_\_\_  
Other (Specify) \_\_\_\_\_

\_\_\_\_\_

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## GRANITE SCHOOL DISTRICT

GRANITE PARK JUNIOR HIGH SCHOOL

3700 SOUTH 450 EAST

SALT LAKE CITY, UTAH 84115

TELEPHONE 262-2588



April 1, 1982

Dear Sirs:

We wish to evaluate certain of your computer programs for possible purchase. This evaluation would include any related teacher - or student - support materials. The following programs are of specific interest:

_____	_____
_____	_____
_____	_____

Before requesting the programs themselves, we need information (brochures, technical reports, or your comments) to answer the following questions:

1. What are the system and memory requirements for each program's use?
2. On what media (disks, cassette tape, cartridge, etc.) is each program available?
3. In what computer language (s) is each program written?
4. For which grade levels or ability levels is each program intended?
5. What are the specific content areas or instructional objectives for each program?
6. Has each program been tested or validated in a classroom setting?
7. What kind of instructional materials are available to support a given program's use? What is the cost of such materials?
8. What is the procedure or cost for obtaining each program for a full review?
9. What is the purchase price of each program?

Please send this information to:

R. J. Howells  
3700 South 450 East  
Salt Lake City, Utah 84115

Sincerely,

R. J. Howells  
Media Specialist

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## GRANITE SCHOOL DISTRICT

## GRANITE PARK JUNIOR HIGH SCHOOL

3700 SOUTH 450 EAST

SALT LAKE CITY, UTAH 84115

TELEPHONE 262-2588

April 23, 1982



Dear Sirs,

Our school is interested in purchasing soft ware for micro computers in \_\_\_\_\_.

Since it is difficult to obtain preview copies, we need help with evaluation of the available soft ware. Would you please send any review or evaluation information that you have available at this time. Please send this information to:

R. J. Howells  
Granite Park Jr. High  
3700 South 450 East  
Salt Lake City, Utah 84115

Sincerely,

R. J. Howells  
Media Specialist

RJH/aa

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Program Title: MATHEMATIC TAC TOE

Program Area: MATH

Level(s): K 1 2 3 4 5 6 7 8 9 10 11 12 C A

Microcomputer Needed: Apple II TRS-80 Commodore PET Other: ATARI 400

Program Type: CAT Simulation Utility Other: GAME WITH DRILL AND PRACTICE

Program Language: Memory Required: 8K 16K 32K 48K Cost:

Number of disks/tapes in program: 1 Cas. Instruction guide: yes

Publisher: Atari Program Exchange

Program Description: Practice in basic computation skills in Math. 15 difficulty levels-15 time-limit levels in a game form for two people. Users play on standard 3 x 3 tic tac toe grid.

	Excellent	Adequate	Inadequate	Not Relevant
<b>I. Instructional Content</b>				
1. Is the content consistent with the goals and objectives of the program?		X		
2. Is the program one of a series in which carefully planned learning objectives have been followed?				X
3. Are program goals provided that are usable for individualized education plans?		X		
4. Are evaluation materials and/or criteria provided that are usable for individualized educational plans?				X
5. Are prerequisite skills, vocabulary, and concepts determined and presented?				X
6. Is vocabulary defined or paraphrased in text or in the prerequisite skills portion of the "Program Principles" section of the Instruction Manual?				X
7. Are diagnostic or prescriptive procedures built into the program?				X
8. Does the text follow established rules for punctuation, capitalization, grammar, and usage?				X
9. Are supplemental materials provided for student and teacher?		X		
10. Are concepts and skills task analyzed into appropriate steps?	X			
11. Is the product designed for appropriate age and ability groups?		X		
12. Are examples provided with directions when appropriate?				X
13. Are redundancy and drill used effectively?				X
14. Is language appropriate in tone and selection?	X			
15. Are concrete applications for concepts provided?				X
16. Is feedback immediate?	X			



## CHECK ONE OF THE FOLLOWING

  X   I would use or recommend use of this package with  
little or no change.

       I would use or recommend use of this package only  
if certain changes were made.

       I would not use or recommend this package.

Describe the potential use of the package in classroom settings.

1. Use as a reward for various reasons. (Highest test score, finishing assignments first, etc.).
2. Assign X number of students to use this program each day.

Describe major strengths of the package.

fun with competition

Practice in basic skills in a game environment

Student has to punch in correct answer on the key board

Describe major weaknesses of the package.

Graphics could be more interesting

Evaluator

Lita Howells

Assignment

Date

5/7/82





APPENDIX F

APPENDIX G



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APPENDIX E



## MICROCOMPUTER SOFTWARE EVALUATION

Program Title: **LEMONADE** Program Area: **MATH ECONOMICS**

Level(s): K 1 2 3 4 5 6 7 8 9 10 11 12 C A

Microcomputer Needed: Apple II TRS-80 Commodore PET Other: **ATARI**

Program Type: CAT Simulation Utility Other: **Game - Instructional**

Program Language: **BASIC** Memory Required: 8K 16K 32K 48K Cost: \$12.95

Number of disks/tapes in program: **1** cas. Instruction guide: **yes**

Publisher: **Atari Program Exchange**

Program Description: Classic computer game for teaching basic economic concepts such as effect of demand, of setting prices, the impact of advertising, and the influence of general events such as (stormy weather, road under repair) on business venture.

	Excellent	Adequate	Inadequate	Not Relevant
I. Instructional Content				
1. Is the content consistent with the goals and objectives of the program?		✓		
2. Is the program one of a series in which carefully planned learning objectives have been followed?				✓
3. Are program goals provided that are usable for individualized education plans?				✓
4. Are evaluation materials and/or criteria provided that are usable for individualized educational plans?				✓
5. Are prerequisite skills, vocabulary, and concepts determined and presented?		✓		
6. Is vocabulary defined or paraphrased in text or in the prerequisite skills portion of the "Program Principles" section of the Instruction Manual?				✓
7. Are diagnostic or prescriptive procedures built into the program?		✓		
8. Does the text follow established rules for punctuation, capitalization, grammar, and usage?				✓
9. Are supplemental materials provided for student and teacher?		✓		
10. Are concepts and skills task analyzed into appropriate steps?				✓
11. Is the product designed for appropriate age and ability groups?		✓		
12. Are examples provided with directions when appropriate?				✓
13. Are redundancy and drill used effectively?				✓
14. Is language appropriate in tone and selection?		✓		
15. Are concrete applications for concepts provided?		✓		
16. Is feedback immediate?		✓		



## CHECK ONE OF THE FOLLOWING

X I would use or recommend use of this package with little or no change.

       I would use or recommend use of this package only if certain changes were made.

       I would not use or recommend this package.

Describe the potential use of the package in classroom settings.

1. To teach basic economic ideas in a game environment.

Describe major strengths of the package.

User has to make certain decisions about how to use the assets each day.

Describe major weaknesses of the package.

Only one person at a time can use program.

Could make better use of graphics might not hold attention of young players.

Evaluator

R. Howells

Assignment

Date

5/8/82





APPENDIX F

APPENDIX G





## MICROCOMPUTER SOFTWARE EVALUATION

Program Title: **Mathematics Level 4-8 MF** Program Area: **Math**

Level(s): K 1 2 3 4 5 6 7 8 9 10 11 12 C A

Microcomputer Needed: Apple II TRS-80 Commodore PET Other: Atari/educator cartridge

Program Type: CAT Simulation Utility Other:

Program Language: **BASIC** Memory Required: 8K 16K 32K 48K Cost: \$79.95

Number of disks/tapes in program: 8 Instruction guide: Yes

Publisher: Dorsett Educational Systems, Inc.

Program Description: Tutorial in fractions, Mixed numbers, changing fractions to decimals, converting decimal numbers, percents, and using a ruler to measure fractions.

	Excellent	Adequate	Inadequate	Not Relevant
<b>I. Instructional Content</b>				
1. Is the content consistent with the goals and objectives of the program?		✓		
2. Is the program one of a series in which carefully planned learning objectives have been followed?		✓		
3. Are program goals provided that are usable for individualized education plans?		✓		
4. Are evaluation materials and/or criteria provided that are usable for individualized educational plans?		✓		
5. Are prerequisite skills, vocabulary, and concepts determined and presented?				✓
6. Is vocabulary defined or paraphrased in text or in the prerequisite skills portion of the "Program Principles" section of the Instruction Manual?				✓
7. Are diagnostic or prescriptive procedures built into the program?				✓
8. Does the text follow established rules for punctuation, capitalization, grammar, and usage?	✓			
9. Are supplemental materials provided for student and teacher?		✓		
10. Are concepts and skills task analyzed into appropriate steps?	✓			
11. Is the product designed for appropriate age and ability groups?	✓			
12. Are examples provided with directions when appropriate?	✓			
13. Are redundancy and drill used effectively?		✓		
14. Is language appropriate in tone and selection?	✓			
15. Are concrete applications for concepts provided?	✓			
16. Is feedback immediate?	✓			



## CHECK ONE OF THE FOLLOWING

X I would use or recommend use of this package with little or no change.

A I would use or recommend use of this package only if certain changes were made.

       I would not use or recommend this package.

Describe the potential use of the package in classroom settings.

Could be used to help slower students ~~to~~ have individual help to learn mathematic concepts in fractions, percents, and decimals.

Describe major strengths of the package.

The voice talking to the user is a major strength.

Might be useful used as practice in estimating numbers.

Describe major weaknesses of the package.

Students probably would be bored after a short time. No graphics or sound other than the voice used.

Students would guess at the answers. The problems were answered by using either two choices or three choices.

Evaluator

R. H. Wells

Assignment

Date

5/8/82









## APPENDIX G

MICROCOMPUTER SOFTWARE REVIEWS  
INFORMATION RESOURCESPERIODICALS

The Computing Teacher  
Dept. of Computer & Info. Science  
University of Oregon  
Eugene, OR 97403

Classroom Computer News  
P.O. Box 266  
Cambridge, MA 02138

Educational Computer Magazine  
P.O. Box 535  
Cupertino, CA 95015

Electronic Learning  
902 Sylvan Ave.  
Englewood Cliffs, NJ 07632

Media and Methods  
American Society of Educators  
1511 Walnut Street  
Philadelphia, PA 19102

School Microware Reviews  
Dresden Associates  
P.O. Box 246  
Dresden, ME 04342

Educational Technology Magazine  
140 Sylvan Ave.  
Englewood Cliffs, NJ 07632

Electronic Education Magazine  
1311 Executive Center Dr. Ste. 200  
Tallahassee, FL 32301

T.H.E. Journal  
P.O. Box 992  
Acton, Ma 01720

Arithmetic Teacher Magazine  
1906 Association Dr.  
Reston, VA 22091

COMPUTER CENTERS

HumRRO  
300 North Washington St.  
Alexandria, Va 22314

I E R Institute for Educational  
Research  
793 N. Main St.  
Glen Ellyn, IL 60137

Harvard Graduate School of Educ.  
Monroe C. Gutman Library  
Appian Way  
Cambridge, Ma 02138

Michigan Educational Resources  
Information Center  
Department of Educ.  
P.O. Box 3007  
Lansing, MI 48909

Florida Center for Inst. Computing  
College of Education  
University of Florida  
Tampa, FL 33620

Minnesota Educational Comp. Consort.  
2520 Broadway Dr.  
St. Paul MN 55113

MicroSIFT  
500 Lindsay Bldg.  
710 SW Second Ave.  
Portland, Or 97204

MACUL JOURNAL  
33500 Van Born Road  
Wayne, MI 48184